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THE NEW ENGLAND BOTANICAL CLUB

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NOTES ON THE FLORA OF MARYLAND AND VIRGINIA,—I.

Ivar Tidestrom.

In a booklet[1] on the Coniferae of Maryland and Virginia, the writer presented a review of the species growing in Maryland and Virginia. A fairly complete synonymy was there given so as to enable any one who might be interested in the history of our Coniferae to trace their record in literature to the earliest sources. In the last five years a good deal has been added by several workers to our knowledge of the distribution of the species. This information is summarized in these notes.

In regard to the genus Pinus which occupies fully as important a place as Quercus in our flora there is much to be added and — corrected. The several distinct floral regions of our area have each some particular pine, which along with certain oaks is characteristic of the landscape, as for instance, *Pinus virginiana* in the western part of the coastal plain of Maryland, or *Pinus Taeda* on the Eastern Shore. It is often true that whatever pine inhabits a region constitutes the most characteristic element in the scenery.

Pinus virginiana Mill. The range of this species is given in the most recent book covering our region[2] "from Long Island to South Carolina, Alabama and Southern Indiana. I have observed the species throughout Maryland with the exception of Garrett County in the western extremity of the state. My observations in western Maryland extend only to a point two or three miles west of Cumberland where I found the species common on slopes. In Virginia my

[1] Elysium Marianum **1**: pt. 2, 1908.
[2] Gray's Manual ed. 7, p. 64.

westernmost record is Clifton Forge [Tm. no. 36] where I observed it at the base of the mountain and to some extent on the slopes, while *Pinus pungens* crowned the ridges. Some miles westward at Covington, I noticed no *Pinus virginiana*, but found *Pinus Strobus* [Tm. 3153] scattered, *Pinus rigida* [Tm. 3154], and *Pinus pungens* [Tm. 3158] frequent. On the Eastern Shore, *Pinus virginiana* is frequent and sometimes abundant. I have observed it associated with *Pinus Taeda* near Cape Charles and in many localities northward. The densest stands, however, are not found on the Eastern Shore but in the western portion of the coastal plain and in the Piedmont region. It was first recorded by Plukenet in 1696 under the name *Pinus virginiana binis brevioribus & crassioribus setis* etc., and also by Clayton.[1] In the stamping ground of that enthusiastic pioneer — at Gloucester Court House and adjacent region — I have found the scrub pine frequent, even forming forests here and there.

Pinus echinata Mill. appears to be a rare tree in our region. I have collected specimens of it from a tree (introduced?) in the park of the U. S. Soldier's Home, Washington, D. C., and in St. Mary's County, Md., between Leonardtown and Millstone [Tm. 5113]. In the latter region it was mixed with the prevalent *Pinus virginiana*. There is a single tree in a field one mile west of Warrenton, Virginia, from which I collected specimens this spring [Tm. 6239].

Pinus pungens Lamb. This interesting little pine was first discovered by Michaux on Massanutten Mountain in Virginia. I had never seen the tree growing wild until August 2, 1907, when I botanized at Clifton Forge. At this place I found it scattered among several species of oaks, particularly *Quercus alba* and *Quercus prinus monticola*. Since that time I have found the tree in several localities — at Pen-Mar on Mount Quirark [Tm. 5889] at an elevation of 630 m.; on Sugar Loaf Mountain, Maryland, at an elevation of 360 m. At the latter place there is a number of trees on the very rocky and steep slopes besides those crowning the summit. The tree is also present at Thoroughfare Gap, Virginia. There are a few trees in Rock Creek Park, Washington, D. C., and also some along the rocky bluffs of the Potomac River, about 15 miles above Washington. The tree is preeminently an inhabitant of the high ridges and plateaux — hence its name Table Mountain Pine.

[1] Gronovius [and Linnaeus] Flora Virginica, p. 190, 1743.

Pinus Taeda L. This stately tree is an inhabitant of the coastal plain. It forms forests in the southeastern quarter of our region, particularly about Norfolk and Cape Charles, Va., and on the opposite mainland. As one descends the Potomac River towards its mouth this weird pine attracts attention on account of its loftiness. Where it forms forests, with the ocean for a background, the tall, straight trunks, devoid of branches to within a few feet of the top, give the impression of countless pillars supporting an uninterrupted roof of branches.

My own observations as to the distribution of the species are as follows: At Franklin, Va., it is one of the characteristic trees on higher ground beyond the river area, which is inhabited by *Taxodium distichum*, *Quercus nigra*, *Quercus lyrata*, and species of Alnus, Betula, and Nyssa. It also forms more or less broken forests eastward towards the ocean. At Petersburg, Va., it is also the characteristic pine on the higher ground, while the area immediately adjoining the Appomattox River is inhabited by Liquidambar, *Quercus nigra*, and other species usually associated with these. Proceeding northward to Fredericksburg we find the tree losing itself, so to speak, among the oaks, hickories, and scrub-pines.

Going northeastward from this point towards the Potomac River and crossing into Maryland, we meet with the tree in Charles County mixed with the scrub pine and shrubs. In June, 1911, I traversed Charles County from a point near the mouth of Nanjemoy Creek northward into Prince George's County to Washington, observing the tree occasionally. After passing Pisgah, Charles County, however, I did not observe a single tree of *Pinus Taeda*. It may occur north of that point but if so it must be rare and out of its range. The solitary trees which occur here and there in northern Charles County, as for example, at Marshall Hall, are lost sight of before one reaches the Prince George's County line. In August, 1911, I explored the region lying between Leonardtown and Millstone, at the mouth of the Patuxent River. In this region I found the scrub pine to be the characteristic conifer, although *Pinus Taeda* was quite frequent. At the mouth of the Patuxent River *Pinus Taeda* is common. North of this point about 30 miles — at Chesapeake Beach, in Calvert County, I have observed scattered individuals, but I have not seen the tree inland from this point — at least not west of the Patuxent River. My own observations, therefore, lead me to believe that

Pinus Taeda does not exist except as a planted tree in Prince George's County, although accredited to this County by Professor Chrysler.[1] It is possible that *Pinus rigida* may have been taken for *Pinus Taeda* in this instance. The former is common in Prince George's County, while the latter has never been observed wild there, as far as I know, by any of the local botanists of Washington who are perhaps more familiar with the situation than botanists from a distance.[2] *Pinus Taeda* can always be distinguished from *Pinus rigida* as the cones in the former are fully twice as long as those of the latter, not to mention any of the leaf-characters. On the Eastern Shore of Chesapeake Bay I have noticed *Pinus Taeda* at Claiborne, Easton, Wye Mills, Queen Anne, Denton, Md., and at Lewes, Delaware, and throughout Accomac and Northampton Counties, Va. In those places it forms forests or is scattered among deciduous trees and *Pinus virginiana*.

PINUS RIGIDA Mill. This pine is a northern tree[3]: It disappears from the coastal plain in Virginia. In the mountains I have observed it in a number of places; at Cumberland, Md., it is common; at Covington, Va., it is mixed with *Pinus pungens* and sparingly with *Pinus Strobus*. It is frequently found mixed with *Pinus virginiana* in the Piedmont region and on the coastal plain. It sometimes forms forests or smaller colonies as at Lewes, Delaware, where I have seen it and *Pinus Taeda* in almost equal numbers. I have no knowledge of its occurrence south of this place except further inland at higher altitudes towards the fall line.

PINUS STROBUS L. This picturesque pine is frequent throughout the western counties of Maryland and Virginia. I have observed it at Pen-Mar [Tm. 5875], at Covington, Va. [Tm. 3157], and elsewhere. Mr. H. H. Bartlett has found it at Rockville, Md., and Mr. H. S. Barber near the Potomac River in Virginia some ten miles upstream from Washington, D. C.

PINUS SEROTINA Michx. This tree has been observed by Mr. R. M. Harper[4] between Portsmouth and Suffolk, Va. It is an inhabitant of sandy swamps in the coastal plain and ranges from Virginia to

[1] Plant Life of Maryland, p. 155.

[2] Much argument ecological falls of its own weight when the entities considered are not known to the observers.

[3] It was known in Europe under the name "the Three-leaved Virginian Pine Tree" as early as 1768 or earlier.

[4] Torreya **3**: 122, 1903.

Florida.[1] Mr. Harper reports it also from the sand hills of North Carolina. I have seen no specimens from Virginia.

PINUS PALUSTRIS Mill. is another very rare tree in our region. It has been reported from the Dismal Swamp, but I have not seen any specimens of it from that place. Mr. Harper (l. c.) reports it common on the coastal plain of North Carolina, "especially on the sandhills."

PICEA. Too little botanizing has been done in our mountains to give us any adequate notion of the distribution of our spruces. The same is true of our firs and the tamarack. The latter was not known from Maryland at the time I prepared the booklet on the Conifers.

TSUGA CANADENSIS L. The hemlock is frequent throughout the mountains of Maryland and Virginia. I have observed it in many places: in West Virginia it is quite common. Solitary trees are to be found along the Potomac River within 15 miles of Washington. So fas as I know we have only one published record of this tree from the coastal plain: it is mentioned in the Plant Life of Maryland by Mr. Shreve,[2] who records it from Watts Creek, Caroline County, some three miles south of Denton. While on a botanical trip to the Eastern Shore, September 23, 1912, Mr. Stevens of Queen Anne, Md., took me to a colony of what the inhabitants called the "yew-pine," some three or four miles south of that village, along the Tuckahoe River. I was astonished to find a large number of *Tsuga canadensis* lining both banks of the river. There was a considerable mixture of species, for many of the swamp species, as Nyssa, Liquidambar, and Quercus, were represented. The largest hemlocks were 3 dm. in diameter. There were also a large number of saplings, and Mr. Stevens estimated the number of hemlocks at 3000. The presence of a great number of robust saplings leads us to the belief that these trees are native and not by some agency or other introduced.

Owing to lack of facilities for crossing we examined only the right bank of the river, so we have little knowledge of the conditions on the other bank, which, however, appeared still more favorable to the hemlock. The vernacular name is of some significance and leads us to believe that it could not have been applied to our tree except by a people who were familiar with the yew. So we must draw the conclusion that the first colonists gave it the name yew pine. Being familiar with the European tree and finding our tree with "yew-leaves" dif-

[1] Small, Fl. S. E. U. S. 28, 1903.
[2] Plant Life of Maryland, p. 122.

ferent from it they applied the name "yew-pine" to it. It should be noted also that the people of the Eastern Shore are not possessed with that restive spirit which characterizes those of other sections and that traditions have remained intact in a higher degree here than elsewhere. Besides the scant means of communication of earlier days, the natural barrier — Chesapeake Bay, and the great distance to other localities for the species — would naturally prevent the people from learning the common name which the tree bears throughout New England and the Middle States.

Taxodium distichum L. The weird Bald Cypress is frequent in swamps in Eastern Maryland and southward. I have observed it along Pocomoke River where it is the prevalent tree and also along Blackwater River at Franklin, Va. Bartram has eulogized it in his Travels (p. 88) and a few lines of his may not be amiss: "its majestic stature is surprising; and on approaching it, we are struck with a kind of awe, at beholding the stateliness of the trunk, lifting its cumbrous top toward the skies; and casting a wide shade upon the ground, as a dark intervening cloud, which, for a time excludes the rays of the sun." I have seen them in all their magnificence in Florida.

Washington, D. C.

IS VIOLA ARENARIA DC. INDIGENOUS TO NORTH AMERICA?

Ezra Brainerd.

(Plate 104.)

European students of *Viola* have recently reduced *V. arenaria* DC. (1805) to varietal rank, as differing from the older *V. rupestris* Schmidt (1791) only in being "densely short-hairy or downy."[1] This requires a corresponding change in the name of the American species, that has been generally passing as *V. arenaria* since the publication of the Illustrated Flora in 1897. But before doing this, it seems a fitting time to review critically the claim that the plants of

[1] Reichlich kurzhaarig oder pflaumig,— W. Becker, Flora Bayerns.

the two hemispheres are of the same species. Through the kindness of Dr. Millspaugh, of the Field Museum, Chicago, I have had the loan for several months of 45 excellent specimens of the European *V. arenaria*, and of 577 additional specimens of allied European species of the *canina* group. The opportunity thus afforded for a careful comparison has convinced me beyond a doubt that our so-called *V. arenaria* is specifically different from the Old World *V. arenaria* DC. Without going into a detailed discussion of the points of difference, I would present them concisely in the following table: — (See plate 104.)

V. RUPESTRIS var. ARENARIA (DC.) Beck.	AMERICAN ALLY
LEAVES: roundish, not much longer than wide, rarely over 2 cm. long;	broadly ovate, bluntly pointed, usually 2–5 cm. long.
STIPULES: ovate to oblong, with acute close-set deltoid teeth;	linear to lanceolate, with scattered setulose teeth mostly near the base.
FLOWERS: much overtopping the leaves;	slightly overtopping the leaves.
BRACTS of peduncles usually on a level with the flower;	usually much below the flowers.
PETALS: broadly obovate, 4–6 mm. wide;	narrowly obovate, commonly 3–4 mm. wide.
SPUR: 3–4 mm. long, straight, blunt;	5–7 mm. long, often curved upward or hooked.
CAPSULE: pubescent;	glabrous.

It should be noted that occasional specimens from the Old World labeled "*V. arenaria*" are not typical, but rather hybrids of this with allied species of the same group. Six such hybrids are listed in W. Becker's VIOLAE EUROPAEAE; some of them closely simulate the American plant.

The task, then, is before us to determine what name, if not *V. arenaria* nor *V. rupestris*, rightfully belongs to our native species. We note, first, that though the plant is not infrequent along the whole northern border of the eastern United States and adjacent Canada, its occurrence in this tract was not recognized until within the last twenty-five years. Dr. Gray, indeed, had once before him a specimen collected by Dr. Engelmann in loose sands on the shore of Lake Superior; but he considered it "a summer form" of *V. canina* var.

Muhlenbergii, that "imitates the European *V. arenaria*." In the Gray Manual the plant is first recognized in 1890, by Dr. Watson, under the name *V. canina* var. *puberula*, "sandy or stony shores and islands of Lakes Huron and Superior." Six years later, in the Synoptical Flora, the range of this variety is extended across the continent, from Maine to Washington and Oregon.

This wide stretch of range is not uncommon among our northern plants, and a thorough study of the abundant material in five of our largest herbaria,[1] affords emphatic confirmation of Dr. Robinson's statement in the Synoptical Flora. The specimens vary considerably in size, in the amount of pubescence, and in the presence of flowers with hooked spurs; but not more so in the western plants than in the eastern.

Now, the plant of the Pacific coast is evidently what Sir J. E. Smith published in 1817 as *Viola adunca*.[2] But Dr. Gray conceived Smith's species to be "nearly glabrous," and subsequent authors have simply echoed his statement[3]; but the author of the species says the leaves are "downy," and emphasizes this character as chiefly distinguishing his species from *V. canina*. I quote Smith's description in full, that the reader may see for himself how well it applies to the eastern plant under discussion: —

"63. VIOLA ADUNCA. Hooked Violet.— Stems simple, ascending. Leaves ovate, somewhat heart-shaped, obtuse, crenate, downy, dotted. Stipulas loosely fringed. Flower-stalks longer than the leaves. Nectary hooked.— Brought by Mr. Menzies from the west coast of North America. This species has the size and habit of *V. canina;* and their *stipulas*, *flower-stalks*, and *bracteas* are similar. The *calyx-leaves* too are extended, in like manner, at the base. The whole of the herbage is minutely speckled, as in our last species,[4] as well as in *canina*. But the plant is more or less downy, and clearly distinguished by the strongly recurved form of the *spur*, which if straight would be as long as the *lip*. The two lateral petals are downy at the base. Perhaps this species is more akin to *canina* than to any other, and ought to stand near it; at least if the *rubella*[5] and *maculata* have no elongation [auricles] at the base of their *calyx*."

[1] I am under especial obligation to Prof. Trelease, recent Director of the Missouri Botanical Garden, for the loan of 126 sheets of this species.

[2] Rees' Encyclopedia vol 38; no. 63 under article on *Viola*.

[3] "Herbage glabrous or nearly so," Piper in Flora of Washington; "glabrous or nearly so," Nelson in New Manual of Rocky Mt. Botany; in key, unqualifiedly "Leaves glabrous."

[4] No. 62. *V. maculata* Cavan., from the Falkland Islands.

[5] No. 61. *V. rubella* Cavan., native of Chili, South America.

'Downy,' though here used three times, is infrequent as a botanical term; but it is good Saxon English for a soft pubescence more pronounced than puberulence; conversely, Webster defines 'puberulent' as "very minutely downy." In the *canina* group there is but one species "from the west coast of North America," that is either downy or puberulent; and if so, we can hardly do otherwise than regard it as the *V. adunca* of Smith, and the *V. canina* var. *puberula* of the Synoptical Flora.

At the same time it should be said that forms of *V. adunca* occur on both sides of the continent that are "glabrous or nearly so." This fact, however, does not embarrass the situation; for there is not a single pubescent species of *Viola* in the western United States that does not furnish forms nearly or quite glabrous. We may question the need of giving a special name to every glabrous form of a pubescent violet, or to every white-flowered form of a purple violet; but in the case of *V. adunca* it will save confusion thus to recognize the occasional loss of this prominent character of the type,— marking a distinction just the reverse of that now made between *V. rupestris* Schmidt and its var. *arenaria* (DC.) Beck.[1] I would therefore propose: —

Viola adunca var. **glabra**, var. nov. Planta foliis, stipulis, caulibusque glabris; aliter typo similis, ad quem transit,— Leaves, stipules, and stems glabrous; otherwise as in the type, into which it passes.— Eastern specimens seen are: Quebec: — gravelly beach, Carlton, Bonaventure Co., *Collins & Fernald* 111, July 19, 1905. Prince Edward Island: — *L. W. Watson*, 1904 (live plants, still in cultivation at Middlebury, Vt.). New Brunswick:— sand plain, Miscou Island, *W. F. Ganong*, August 15, 1905; Grand Menan Island, *J. Vroom*, May 9, 1880. Ontario: — Drommond's Island, Niagara, *Macoun*, May 13, 1901. Michigan:— Isle Royale, *W. S. Cooper*, Aug. 20, 1909. N. Dakota:— Peninsula of Lake Ibsen, Benson Co., *Dr. J. Lunell*, May 10, 1907.

Some further comments may be permitted, in order to clear up other misapprehensions regarding *V. adunca* and its allies.

The hooked spur that suggested the specific name, though doubtless seen in all the specimens before the author of the species, is far from being a constant character, and occurs occasionally in such allied

[1] The following observation of Wilhelm Becker applies equally well to the allied American species, if we omit the word "only":— "*V. rupestris* varies only as respects pubescence, which is ± evident or quite lacking. The completely glabrous form occurs, sometimes, exceptionally; but sometimes it is the exclusive form of a whole region. * * The two are connected by transitional forms." Translated from Violae Europaeae, p. 48.

species as *V. rostrata* and *V. conspersa*. Sir William J. Hooker observes [1] that "the greater number [of spurs in *V. adunca*] are straight, thick and very obtuse," though they are generally uncinate "in the state of bud." The spurs of these species are unusually long, and apparently are doubled up in aestivation, and when the flower expands often do not quite straighten out. The spur not infrequently displays other aberrant forms,—tapering to a more or less acute point, or bearing one or more small protuberances on the upper side. Several pseudo-species have been founded on these trivial malformations: *V. oxyceras, V. odontophora, V. unguiculata, V. drepanophora, V. mamillata, V. uncinulata.* Dr. Watson, with more reason, would distinguish all the forms with straight blunt spurs as var. *longipes* (Nutt. pro sp.). But both kinds of spur, straight and hooked, are at times to be seen on the same plant! Nuttall's *V. longipes* is by others taken to designate the glabrous forms; but his description reads "glabrous or slightly pubescent"; and one of the two plants collected and labeled by himself as his type (or at least marked with an asterisk, his way of writing 'n. sp.') shows marked puberulence. Should not the name be allowed to pass into the 'limbo of synonymy'?

The dotted, or minutely speckled, herbage ascribed by Sir J. E. Smith to *V. adunca* is not a proper character, but rather a condition not found in the living plant, but in specimens poorly dried, or later exposed to heat and moisture. It is the effect of fermentation induced by enzymes.[2] It may be observed on old specimens of many species of *Viola* that are but remotely related to each other. Its presence, however, has suggested several specific names, such as *V. punctata* Schwein., *V. conspersa* Reichenb., *V. maculata* Cavan. Hooker, confirming Smith's account of dotted leaves in *V. adunca*, says that all his own specimens, and these from very remote localities, are "so thickly covered with distinct brown dots as to give a dusky hue to the foliage, and to bring the species near to some of the South American kinds, which present that appearance in a remarkable degree." Dr. Gray, among the characters separating *V. striata* and *V. canina* from his *V. Howellii*, says the leaves of the former are "apt to be brown-dotted in age," those of the latter are "dotless." [3] But

[1] Flora Bor.-Am. i. 79. 1830.

[2] I am indebted to Prof. Burns of the University of Vermont for a microscopic investigation of this phenomenon.

[3] Synop. Fl. N. Am. I. pt. 1. 204 & 205.

Dr. Gray had before him only fresh and well-dried specimens from Howell and Suksdorf. As a matter of fact, good specimens of *V. Howellii*, markedly punctate with minute dots, are to be seen in the herbaria both at St. Louis and at New York;[1] in the latter herbarium is also an older specimen,[2] marked in pencil by Dr. Gray as "large *V. canina*."

The acaulescent appearance that *V. adunca* sometimes assumes at vernal flowering has been a cause of further confusion. The American caulescent species that bear violet-colored flowers all belong to the group 'Rosulantes,' marked by bearing in spring at the crown of the rootstock a cluster of leaves. From the axils of these the stems later appear, and often petaliferous flowers on long scape-like peduncles, especially if the growth of the stems is retarded. These undeveloped forms are easily mistaken for stemless species. Even Dr. Gray, thus misled, has in the Synoptical Flora placed *V. Langsdorfii* (a stemmed violet of the Northern Pacific coast, allied to *V. adunca* and the Eurasian *V. mirabilis*) in the section of species "strictly acaulescent." Dr. Greene has published as a species (*V. filipes*) a seemingly acaulescent form of *V. adunca*. (Pitt. iv. 289.) On the other hand, Howell and others have distributed *V. nephrophylla*, a truly stemless species as *V. Howellii*, supposing it the form with undeveloped stems.—In Garcke's German Flora, at the end of his treatment of the stemless violets, there is a sign-board, warning every one not to locate there forms of *V. mirabilis* that are stemless at first flowering.[3] We may need to have a like caution inserted in our American manuals.

Middlebury, Vermont.

Explanation of Plate 104.

1. *Viola adunca* J. E. Smith, (*E. Brainerd*, Bristol, Vt., May 26, 1912), × ⅔. A. stipule × 2; B. immature capsule × 3.
2. *Viola rupestris* Schmidt var. *arenaria* (DC.) Beck.; after Schlechtendal revised by Hallier, fig. 1273. × ⅔. C. stipule × 2; D. capsule × 2; both after Reichenbach, Pl. crit. lxxii.

[1] Pt. Reyes, Marin Co., Cal., July, 1903, *A. D. E. Elmer;* labeled "*V. cuneata.*"
[2] Swamps at Noyo, Mendocino Co., Cal. Bolander, coll. 1867.
[3] Man hüte sich, die zuerst blühenden, stengellosen Pflanzen von *V. mirabilis* hieher zu rechnen."

NOTES ON NEW OR RARE VIOLETS OF NORTHEASTERN AMERICA.

Ezra Brainerd.

I have had the privilege of examining the violets collected by Prof. Fernald the past season in Prince Edward Island and the Magdalen Islands, and also those collected the two previous years in Newfoundland. They conform for the most part to the forms found in eastern Quebec and in the mountainous regions of northern New England. In Newfoundland, *V. labradorica* seems to take the place of *V. conspersa*. The only white violets are *V. renifolia* var. *Brainerdii*, *V. pallens* (often with the petioles of summer leaves quite hirtellous), *V. incognita*, and its var. *Forbesii*. Not unexpectedly, *V. septentrionalis* and *V. nephrophylla* were found in Newfoundland. We miss, however, all forms of *V. canadensis* and *V. pubescens*, and the acaulescent *V. rotundifolia*, *V. sororia* and *V. affinis*, — five species rarely, if ever, found to the north or east of Maine.

V. cucullata is widely distributed in these islands, and quite variable. The most common form, as in the Green Mts., is one in which the leaves under a lens appear more or less hirtellous, and the margin of the sepals "often interruptedly serrulate-ciliolate." This is the *V. prionosepala* of Dr. Greene. (Pitt. v. 99.) We do not believe it specifically distinct, but it may well pass as *V. cucullata* Ait., forma **prionosepala** (Greene).

Another departure from the quite glabrous form of the Middle Atlantic States is more serious. The long auricles of the persistent sepals have been considered a reliable character in *V. cucullata*. But in Newfoundland and the Magdalen Islands plants occur with short appressed auricles, though in other characters — foliage, flowers and seeds — conforming to normal *V. cucullata*. This we would mark off as:

Viola cucullata Ait., var. **microtìtis**, var. nov., auriculis sepalorum 1–2 mm. longis, multo brevioribus quam in forma communi.— Auricles of the sepals 1–2 mm. long, much shorter than in the ordinary form.— Newfoundland: — damp thickets and open woods, Grand Falls, July 4, 1911; wet mossy spruce and larch woods, Grand Falls, July 5, 1911; low mossy and boggy spruce woods along Gander River, Glenwood, July 12 & 13, 1911; bog, Black Island, July 20,

1911; *Fernald & Wiegand*, nos. 5856, 5857, 5861, 5864. QUEBEC.—wet woods and thickets, Grindstone Island, Magdalen Islands, *Fernald & others*, no. 7773, July 17, 1912.

In the northwestern portion of the region covered by the Gray Manual we have to record the appearance of V. NOVAE-ANGLIAE,[1] heretofore known only from northern and central Maine.[2] It was collected by the late Dr. Fletcher at Maple Lake, near Parry Sound, Ont. Living plants, furnished by Dr. Fletcher in 1904, were for several years grown at Middlebury, Vt. In June, 1909, Dr. H. V. Ogden of Milwaukee sent live plants, collected "on a small sand island" Mercer, Wis.: and a year later, other plants, from Saxesville, Wis., 250 miles further south. From seeds of both, vigorous plants with large handsome flowers were obtained. Prof. Fernald has shown me also a specimen from Duncan Bay, Isle Royale, Mich., *W. S. Cooper*, Aug. 18, 1910. The species, thus, seems to occur with more or less frequency in the region of the Great Lakes.

V. RUGULOSA Greene, found in Minnesota, Iowa, and eastern Nebraska, should be added to the Gray Manual list. *V. Rydbergii* Greene, published a page later, is from the eastern slope of the Rocky Mts., but is hardly distinguishable from the Minnesota plant. Both have root-leaves much broader and larger than those of *V. canadensis*, and the upper stem-leaves are densely short-pubescent beneath, especially along the veins. But the most pronounced character is the presence, well underground, of long vigorous branching root-stocks, by means of which the plant spreads rapidly in the garden or in the wild. But this character is rarely seen in herbarium specimens and was apparently unknown to Dr. Greene when he described the species. I observed it first in plants under cultivation from Boulder, Colo. To ascertain whether this was also the habit of the Minnesota plant I applied to Prof. Clements, who kindly sent me living specimens with abundant stolons, not only from the University grounds but from its native haunts at Ft. Snelling.

V. EGGLESTONII,[3] a fine species with rich purple flowers, is also entitled to recognition in the Gray Manual. The type specimens

[1] RHODORA vi. 226, pl. 59; and vii. 1–3.

[2] Since the above was written, I have received specimens, both in flower and in fruit, of *V. novae-angliae* from the Province of New Brunswick:— Wet sandy shores, Lake Utopia, St. George, Charlotte Co., N. B.: *J. Vroom*, July & August, 1883. This is the earliest known collection of this species.

[3] Bull. Torrey Bot. Club xxxvii. 526, plates 34 & 35. 1910.

were collected by Mr. Eggleston at West Nashville, Tenn., May 26, 1909. But there is a specimen in the National Museum, collected near Nashville July, 1897, by Mr. Williamson, but named by Mr. C. L. Pollard *V. viarum* Pollard. A still older specimen is in the herbarium of the Missouri Botanical Garden, collected by Dr. A. Gattinger at La Vergne, Tenn. (15 miles southeast of Nashville), May 13, 1881. But it was of more interest to find at St. Louis a specimen from Bowling Green, Kentucky, collected by Miss Sadie F. Price April 11, 1899, labeled "*V. falcata* Greene."

V. SEPTEMLOBA LeConte, a most distinct and beautiful species of the coastal plains from N. Carolina to Mississippi, seems to occur, at least sporadically, in Virginia and even in Delaware. It was admitted into the revised edition of the Illustrated Flora on the evidence of a specimen from Virginia Beach collected by Mrs. N. L. Britton. Later a good specimen of LeConte's plant was seen in the herbarium of the Field Museum, Chicago, the ticket reading: "*Viola cucullata* var. *palmata* L. Newcastle Co'y, Del., W. M. Canby, coll." Unfortunately the date and the name of the town where found are lacking. But collectors in these localities should be on the watch for this species.

I take this opportunity to emend the names of three hybrids, two described from Lexington, Mass., and one from the Middle Atlantic States; the change is required by the recognition of *V. triloba* Schwein. as a species distinct from *V. palmata* L. But *both* species are found to cross with *V. fimbriatula*, with *V. cucullata*, and with *V. sagittata*, as follows: —

1. **Viola fimbriatula** × **triloba**, nom. nov.— *V. fimbriatula* × *palmata* Robinson, RHODORA viii. 53, pl. 70. March, 1906.

2. **Viola fimbriatula** × **palmata**, hyb. nov.—Not *V. fimbriatula* × *palmata* Robinson, from which in aspect it is markedly distinct.— Leaves ovate in outline, subcordate, obtuse, 3–5-lobed or -cleft on either side chiefly below the middle, finely pubescent especially on the petioles and along the veins of the lower surface; flowers, capsules and peduncles intermediate between those of the parents; plants quite infertile; offspring diversiform,— some with leaves like those of the hybrid parent, others with leaves uncut as in *V. fimbriatula*, and still others with deeply lobed leaves as in *V. palmata*, in all cases the width of leaf being intermediate.— East Lyme, Ct., *Miss A. M. Ryon*, Oct., 1905; rocky woodlands, Yonkers, N. Y., *Brainerd*, Sept. 9, 1905; Spring Valley, N. Y., *Miss E. M. Kittredge*, May 26, 1911; Sylvan Beach, Oneida Co., N. Y., *H. D. House* 1244 (in part), July 11,

1905; Palmer's Glenn, N. Y., *J. Bishop*, 1909; Mt. Tryon (alt. 760 m.) Tenn., *E. Brainerd*, April 21, 1910.

3. **Viola cucullata** × **triloba**, nom. nov., *V. cucullata* × *palmata* [var. *dilatata* authors not Ell.], Rhodora viii. 56 (March 1906).

4. **Viola cucullata** × **palmata**, hyb. nov., not *V. cucullata* × *palmata* of Rhodora viii. 56.— Leaves nearly glabrous, broadly cordate-ovate, lobes as numerous as in *V. palmata*, but shorter; cleistogamous flowers intermediate in form to those of the parent species, on elongate ascending peduncles; auricles long, slightly setulose, sepals otherwise glabrous; capsule bearing few seeds.— East Lyme, Ct., *Miss A. M. Ryon*, Oct. 4, 1906.

5. **Viola sagittata** × **triloba**, nom. nov., *V. palmata* [var. *dilatata* authors not Ell.] × *sagittata*, Rhodora viii. 54, except specimen last cited.

6. **Viola palmata** × **sagittata** hyb. nov., not *V. palmata* [var. *dilatata* authors not Ell.] × *sagittata*, Rhodora viii. 54.— Leaves ciliate and more or less pubescent, subcordate, with 6-8 acute slender lobes chiefly towards the base; capsules infertile.— Garrison's, N. Y., *Ed. S. Denton*, May, 1886 (characterized by Dr. Gray as "*V. palmata* towards *sagittata*"); Staten I., N. Y., *Philip Dowell* 4518 b, July 18, 1906; West Orange, N. J., *Philip Dowell* 4795, June 22, 1907.

Middlebury, Vermont.

Arenaria caroliniana in Rhode Island.— Several plants of *Arenaria caroliniana* Walt. were found by the writer in the salt-marsh back of the sand-dunes at Weekapaug, Rhode Island, Sept. 1, 1912. They were growing on a slightly elevated, but dry, spot in the meadow and were confined to the one locality. Some of them were still in blossom on the 22nd of the month.

Through the kindness of Prof. Fernald, I am enabled to give the previously printed records (under the synonymous name *Arenaria squarrosa*) of this plant for New England, as follows:

"Arenaria squarrosa Michx. Torrey & Gray, i, 179.
In Block Island, Dr. Robbins, Sept., 1829."
Oakes in Hovey's Magazine, xiii, 218 (1847).

"Arenaria squarrosa Mchx., Robbins, 1829.
S. T. O." (Stephen T. Olney) in note on the rare plants of Block Island, in Bulletin Torrey Botanical Club, v, 38 (1874).

The above records seem to have been overlooked by all the manual-makers.

Specimens from Weekapaug have been placed in the Herbarium of the New England Botanical Club.— John H. Sage, Portland, Connecticut.

Hieracium florentinum at Wellesley Hills, Massachusetts. — On October 22, 1912, I found an unfamiliar plant growing rather abundantly in dry sandy soil by the side of Cliff Road, Wellesley Hills. Prof. K. M. Wiegand identified this as *Hieracium florentinum* All. The American range of this plant is given in Gray's Manual as "eastern Quebec to northern New York." There is, however, a sheet of it in the Gray Herbarium collected by Mrs. Ella L. Horr on June 11, 1911, at Worcester, Massachusetts, "in a pasture, well established," and a sheet in the Herbarium of the New England Botanical Club, collected by Mr. F. F. Forbes, June 16, 1912, in Brookline, Massachusetts, where found in abundance in "dry sandy ground off Pond Ave." With these three Massachusetts stations the range is extended far to the south and east of that given in the Manual.— Ruth S. Rodman, Wellesley College.

The Nineteenth Annual Meeting of the Josselyn Botanical Society will be held at Thomaston, Maine, August 12–16, with headquarters at the Knox Hotel. Further notice, with program, will be sent to members, and to any persons interested, on request, at least two weeks previous to the meeting.— Dana W. Fellows, Secretary, Portland, Maine.

Vol. 15, no. 173, including pages 81 to 100, was issued 19 May, 1913.

F. Schuyler Mathews del.

1. Viola adunca J. E. Sm.
2. Viola rupestris Schmidt var. arenaria (DC.) Beck.

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